RIVERWAYS
Newsletter Summer 2001

A Publication of the Massachusetts Riverways Programs
Department of Fisheries, Wildlife & Environmental Law Enforcement, David M. Peters, *Commissioner*
Executive Office of Environmental Affairs, Bob Durand, *Secretary* • Jane Swift, *Governor*

Rivers Month, Biodiversity Days and "A Fish Story" Kick-off on June 7TH

Bob Durand presented the Governor's Rivers Month Proclamation to David Ellis, president of the Museum of Science, at the kick-off for "A Fish Story." Photo by Eric Workman

In a spirited blend of nature and technology, Executive Office of Environmental Affairs Secretary Bob Durand, kicked off Massachusetts Rivers Month and Massachusetts Biodiversity Days at the Museum of Science, Boston on June 7.

Standing on the elevated stage of the new Current Science and Technology Center and backed by large plasma display screens, Secretary Durand presented the Rivers Month Proclamation, on behalf of Governor Jane Swift, to David Ellis, Museum president. DFWELE Commissioner David Peters joined Secretary Durand in encouraging partnerships between agency staff and volunteers of all ages to ensure that our natural resources remain healthy.

Participants in the event included Alexander M. Gorlov, inventor of the Gorlov Helical Turbine; the 4th Grade Class of Buckland-Shelburne Elementary School in Shelburne, Massachusetts, visitors to the museum, watershed association members, Watershed Initiative, DFWELE/DMF/Riverways, MDC, EOEA and museum staff.

Secretary Durand said that the Commonwealth, as a result of its history in the industrial beginnings of the country, is home to over 3,000 dams. He praised Riverways' River Restore Program for its work with communities and dam owners to restore flowing habitats and fish passage. Secreatary Durand also highlighted the recent Watershed Initiative/MDC collaboration that recently installed new baffles in the Watertown Dam fishway making eight additional miles of the Charles River more accessible to river herring.

Secretary Durand announced the beginning of Massachusetts Biodiversity Days by discussing the childrens' watershed address — the Deerfield River watershed — with them while urging them to spend time outside identifying plants and animals with which they share an ecosystem and a backyard. Each child received a copy of the new *Critters of Massachusetts Pocket Guide* to help them identify animals they see. Durand shared the stage with Museum of Science staff and two fellow residents of Massachusetts, a Great Horned Owl and a Black Rat Snake.

Carol Lynn Alpert, manager of the of the Current Science and Technology Center, with the help of video coordinator, George Moore, presented the premiere of "A Fish Story" on their high-tech video presentation system. The program featured the life cycle and long journey of the alewife from ocean waters to their spawning grounds in Damariscotta Mills, Maine and the obstacles they face on this miraculous journey. In addition to underwater footage of herring in the Maine brook, the audience saw Division of Marine Fisheries staff netting a run of blueback herring from the healthy Charles River run for transport to the Ipswich River which is under restoration.

Continues, page 7

Bob Durand addresses the audience for the kick-off of Biodiversity Days and the new "A Fish Story" exhibit at the Museum of Science. Photo by Pat Sheppard

Watershed Initiative 2002 Round Table Projects

The Watershed Initiative Round Table has met and approved the annual 2002 work plans for the 27 major watersheds. To prepare the work plans, Teams work with both the agency and watershed partners to come up with the major issues in the watershed. To resolve these issues the watershed teams develop projects to be completed through:

- Existing team resources – both public and private;
- Grant programs; and
- Watershed Initiative funding through the Round Table.

In the late fall, Teams present the priority projects that require Round Table funding to EOEA which then distributes them to the Interagency Work Plan Review Committee (IRWC), which is made up of representatives from each of the EOEA agencies—Food and Agriculture, Fisheries, Wildlife and Environmental Law Enforcement, Environmental Protection, Environmental Management, Metropolitan District Commission and EOEA. Riverways Programs staff, Joan Kimball and Pat Sheppard represent the Department of Fisheries, Wildlife and Environmental Law Enforcement on the IWRC committee. Commissioner Dave Peters represents the Department at the Round Table.

Over 100 projects have been approved by the Round Table for 2002. The work plan priority projects fall into several broad categories which are listed under the seven objectives of the watershed initiative:

Water Quality and Quantity

- Flow: Evaluation of Perennial/Intermittent Streams, Hydrologic Analysis, flushing Studies
- Pond and Lake Management: Education, stewardship, septic systems
- Landfill Assessment
- NPS pollution reduction, technical assistance, stormdrain mapping, monitoring
- Water Quality , monitoring, TMDLs, wastewater management study
- Water Supply & effects on flow: Conservation/Efficiency Specialist, staff gage installation
- Water Supply: salt in wells, forestry management plan, mapping (water and sewer), source water protection

Habitat Protection

- Assessment: Aquatic Habitat Assessment
- Dam removal/alternatives study
- Fish: Anadromous fish restoration, survey, signage
- Wetland Restoration, protection, restoration and stormwater mitigation, field training on soils and botany, salt marsh restoration
- Restoration of brooks

Open Space Protection

- Open Space Plans – watershed, parcel inventory and analysis

Capacity Building

- GIS support for MWI
- Stream Team Organizer
- Watershed Hydrologist
- Watershed Action Plans, assessment reports, assistants
- Wetlands circuit rider

Recreation

- Greenway Assessment, rail trail plan
- Recreation & Public access –car top boat access, opportunity mapping for recreational access
- Rail Trail Plan, trail maps

Education and Outreach

- Education & outreach
- Cleanup: Tire Removal
- Watershed Signs
- Storm drain design charette
- NEMO

Who does the projects?

The projects can be done in many ways. In most instances the agencies assigned to manage the projects will put a Request for Response (RFR) out on the agency web page (COM-PASS) and consultants will apply. Consultants include watershed associations, private consulting firms, private contractors, and regional planning agencies. In other instances, state agencies themselves will do projects they otherwise couldn't do, and in still other cases the federal government or universities will do the projects.

2002 Watershed Initiative Projects with DFWELE as the lead agency

The **Riverways Programs** will work with the Parker River Clean Water Association, Stream Teams, municipalities and interested citizens to look at the *Parker River* for potential access points and to evaluate existing access points. Similarly on the *Housatonic River*, Riverways and the Public Access Board is working with DFW, HVA, Stream Teams and interested citizens to determine which sites are eligible to become PAB sites. Following this stage, the Public Access Board will design and build access points.

The **Riverways Programs** will put out an RFR to hire a consultant to:

(1) conduct a Great Marsh Regional Herring Count for *North Coastal, Ipswich and Parker River Watersheds*. The consultant will standardize methodology for regional and long-term trends. The project includes education and data compilation. Partners for this project include Massachusetts Audubon, Parker River Clean Water Association, Ipswich River Watershed Association, and Eight Towns and the Bay (MA Bays).

(2) develop and implement water conservation and efficiency throughout the Ipswich watershed. The consultant will offer technical assistance to identify and implement practices, develop a regional water conservation program, institute water audit service and provide school education.

(3) create a Stormwater Design Charette or other means of generating designs for remediating runoff from or improving the channelized river reaches passing through the MA Museum of Contemporary Art (MASS MoCA) complex in North Adams. A partnership with MASS MoCA will be created to come up with innovative ideas and designs.

(4) create a Storm Drain Stenciling Program in the Connecticut River Watershed to heighten awareness of water quality issues surrounding stormwater runoff in urban and suburban areas.

(5) draft a Dam Removal Manual: the purpose of this project is to provide a one stop source of information for dam owners – including information on the regulatory process of dam removal, as well as social, cultural and environmental issues that surround dam removal. The manual will come out of experiences from a dam removal project on the Mill River in Northampton.

(6) develop an Outreach Map of the Ten Mile River. The purpose is to synthesize the Five-Year Watershed Action Plan into a readily understandable tool for the public. The poster will be two sided and will identify issues and actions in both a graphic and narrative format.

(7) develop and print a recreational map of the Shawsheen River. The map will help community residents to appreciate the river through its recreational use.

The Division of Fisheries & Wildlife will put out an RFR to hire a consultant for the Westfield River who will trap, identify and count any Blueback Herring reproduction from adult Bluebacks relocated from the Connecticut River. Understanding the reproductive success of these fish is crucial to reestablishing this valuable fish as another part of the Biodiversity of the Westfield River.

The Division of Fisheries & Wildlife will survey fish in the Hudson, Housatonic, Charles, Ten Mile and North Coastal Watersheds to complement the water quality monitoring conducted by DEP. Deliverables include a survey design, field study and a final report. DFW will consult with the teams and the team leaders, DEP, Riverways and district biologists in order to prioritize sites for the sampling season. In addition, DFW will assess data collected in FY01 (Westfield, Farmington, SuAsCo, Taunton, South Coastal) and summarize findings which will be presented to these teams.)

The Division of Marine Fisheries will hire consultants so that it can assess the current status of anadromous fisheries, fishways and impediments to fish migration and emigration throughout the Massachusetts coastline. A baseline of this data exists in a 1974 report authored by DMF. Data would be added to the anadromous fish GIS layer, providing a thorough overview of the status of the Commonwealth's fish. The updated version of the study will resemble the Peterson Field Guides and will include photos, reports and GIS maps.

EOEA watershed teams have already begun discussions regarding the contents of their 2003 work plans. To get involved in this process, contact the appropriate team leader(s) for your watershed(s). See <www.state.ma.us/envir/mwi/contact.htm>.

Is There A Relationship Between Water Quality And Urbanization?

Dozens of watershed groups have started successful water monitoring programs. The data collected by these groups is adding valuable information to the collective knowledge about our waters. Despite the diligence of these monitoring programs, large gaps remain. These gaps are inevitable because many pollutants are difficult and costly to analyze. Synthetic chemicals, trace elements and volatile organic compounds (VOCs) are just some of the challenging contaminants that are difficult or costly to test for but pose threats to public and ecological health.

Fortunately the United States Geological Survey (USGS) has managed to provide us with information on many of these constituents through their North American Water Quality Assessment (NAQWA) Program. NAQWA was started as a pilot program in 1986 by dividing the country into 59 study units enveloping major river basins and hydrogeologic areas. Two of these study units fall (in part) within Massachusetts (the Connecticut/Housatonic/Thames River Basin and the New England Coastal Basin). The NAWQA Program has a rotating work cycle. The Connecticut study unit had its intensive sampling a few years ago and the Coastal study unit just finished its most intensive sampling year in 2000. The results from these extensive samplings are being made available and contain interesting information about our surface and ground water quality.

One of the most interesting aspects of the recent Coastal basin sampling was its focus. Part of the study was tailored to look at the effects of urbanization on water quality. A number of shallow wells in a mix of commercial, residential and undeveloped land were sampled for 48 different pesticides, 86 different VOCs, several nutrients and other compounds. The analysis of the well waters showed the influence of urbanization, "trace amounts of nutrients, fuel and industrial-based organic compounds". (USGS Water-Resources Report 01-4042)

Over two thirds of the wells sampled in the study had VOCs present, though most in trace amounts. Chloroform was the most prevalent VOC found though none of the wells had concentrations in excess of recommended drinking water levels. Possible sources of chloroform include domestic use of solvents and cleaning fluids, flows from water main leaks, and lawns irrigated with chlorinated (public drinking supply) water. Another common VOC is Methyl-*tert*-butyl ether, (MTBE) gasoline additive. MTBE was found in just over half the wells.

Many of the same pollutants were sampled for in the Connecticut River study unit in 1993-95. Unfortunately the results are not easily compared because of different detection abilities in the laboratory analysis. The significant number of wells with VOCs concentration in the 2000 Coastal study is attributable to sophisticated laboratory analysis not available just a few years ago.

In order to do a little comparison of the results in the two studies, the USGS corrected for the different detection limits by eliminating all the data in the Coastal study unit falling below the 1993-95 detection limits. This adjustment dramatically changed the number of wells with VOC s because a majority of the wells had low VOC concentrations. The manipulation also eliminated Chloroform as the most prevalent VOC, it was replaced by MTBE for both study units.

Sampling in the Connecticut River basin encompassed areas with a higher density of people in areas developed before 1970 while the Coastal basin had more recent developments, post 1970. These differences may be the reason the Connecticut area had statistically higher frequency and concentrations of pesticides. The highest level of pesticide was found in the Connecticut study unit where a sample contained over ten times the level of atrazine compared to the highest levels found in the Coastal study unit.

Work is still on going in the New England study units but at a less intensive level. The USGS's NAWQA Program plans for 2001 include a continuation of some fixed surface water monitoring, undertaking a trace element/suspended sediment study, looking at VOC sources into the Aberjona River, monitoring nutrients and chlorophyll in 10 streams over an urban gradient, studying regional patterns of arsenic, and several more initiatives. Funding changes for USGS and the NAWQA Program may mean a reduction in their 2002 work plans.

There is far more information available from the NAWQA studies both in New England and across the country. The NAWQA web page is a good place to find out information and a list of publications <http://water.usgs.gov/nawqa>.

Riverways Answers Your FREQUENTLY ASKED QUESTIONS:

Q: Several sections of streambank along a river in our town have recently begun to rapidly erode away. Although there are no structures or bridge abutments currently at risk of being undermined, several adjacent farms are at risk of losing valuable cropland. The affected landowners would like to stop the erosion and have applied to the town conservation commission for permission to riprap the eroding sections of streambank. We are concerned about the adverse ecological and aesthetic impacts of the riprap and would like to propose an alternative solution. Do you have any suggestions?

A: Streambank erosion occurs when the "erosive force" of a river's current, wave action, runoff from adjacent lands and/or fluctuating water levels exceeds the "resistant force" of the cohesion of soil particles, plant roots and other factors holding the bank in place. These forces are normally more or less in equilibrium. Even so, some streambank erosion is to be expected as a natural byproduct of a river's natural sinuosity. Some animals (Bank Swallows, *Riparia riparia*, for example), actually prefer and seek out freshly eroding streambanks for nesting and burrowing habitat. Natural rates of erosion need not be controlled unless valuable properties such as structures and bridge abutments are threatened.

Excessive erosion can be triggered when the erosive force is strengthened (such as when impervious surfaces resulting from an urbanizing watershed increase the "flashiness" of streams during rainstorms) or when the resisting force is weakened (such as when established deep-rooted streambank vegetation is removed in favor of shallow-rooted grass or cropland). The usual response to excessive erosion is to employ measures that strengthen the resisting force of the affected streambank.

Although they may be effective in stopping further erosion at the locations where they are properly designed and installed, riprap and other "hard" structural approaches to streambank stabilization such as cribwalls and gabions often merely move the erosion problem someplace else by redirecting the erosive force of the current to the opposite bank a short distance downstream. Riprap and other "hard" treatments can also present significant physical and/or psychological barriers to wildlife movement to and/or along rivers and streams. The employment of "hard" treatments along otherwise undeveloped riverfronts are also considered by many to be lacking in aesthetic appeal, as they introduce an artificial element that is out of place in a natural riparian landscape.

There is an alternative. *Bioengineering* is a "soft" and environmentally benign method of streambank restoration that utilizes woody and/or herbaceous plant materials instead of rock or concrete. Herbaceous plants are typically grown in coconut fiber rolls, while woody plants are gathered as dormant cuttings and usually tied into bundles. The plants are then staked into the streambank. (Tree revetments, a different but related technique, employs dead tree trunks and/or stumps which are secured into and/or along the streambank using cables.)

Bioengineering treatments, when properly designed and installed are as, if not more, effective than conventional methods of streambank erosion control. The living plants incorporated into bioengineering develop root systems that hold the bank in place. These living bioengineered systems are even capable of self-repair if the treated area is damaged after installation, as the living plant materials will eventually fill in and grow over the damaged area, a feature that riprap and other conventional non-living techniques cannot perform.

Bioengineered streambanks are superior at trapping sediment from the river and stabilizing it on the bank than conventional treatments. Bioengineering is also superior to most conventional streambank treatments in absorbing the erosive forces of streamflow, thereby helping to reduce erosion effects downstream. In some applications, such as where the erosive forces of wave action are a significant issue, bioengineering techniques are appropriately used in combination with riprap or other "hard" treatments.

As living systems, bioengineering treatments are more effective than conventional approaches in protecting and enhancing riverine water quality. Bioengineered materials act as a vegetated buffer between the stream and adjacent land uses, filtering out excess nutrients and other pollutants that would otherwise have ended up in the river. Vegetated streambanks also help to attenuate pollution in the river itself because excess nutrients and other water contaminants are taken up by the living plant tissues as well as by the microbes that find suitable habitat along plant roots in the bank and/or extending into the river.

Bioengineering has several other environmental advantages over conventional streambank treatments. The living plant materials incorporated into bioengineering treatments provide much more hospitable habitat and cover for wildlife than the more sterile conventional measures. Bioengineering treatments that utilize woody vegetation and/or enable woody vegetation to be reestablished along the streambank will eventually help to shade the river, helping to reduce its temperature, which will result in a higher dissolved oxygen content and a more favorable habitat for trout, salmon and other "cold-water" aquatic species. The organic debris such as leaves, seeds, etc. that fall from the streamside vegetation into the water provide important raw material for the aquatic food chain. Vegetated streambanks are also superior aesthetically to rock riprap and other conventional approaches, thereby producing a positive impact on recreational and property values along the river corridor.

As bioengineering treatments offer a host of environmental advantages over conventional approaches of streambank stabilization while offering equivalent if not superior abilities for erosion control, proposed streambank stabilization projects utilizing bioengineering should receive more prompt and favorable action by conservation commissions and other environmental reviewers than projects exclusively employing riprap or other "hard" structural measures.

Continues, page 12

A bioengineering installation along the Mill River in Whately showing a root wad revetment with branch packing and live staking. Photo by Rachel Calabro

Urban Rivers Program Update

The Riverways Urban Rivers Program has been graced with a wonderful collection of Urban Rivers Fellows this past semester. The work completed by the five students during the past months has provided invaluable information for several communities including mapping to help assess open space acquisition along the Blackstone River in Milbury and determine water quality trends in the Alewife River in Somerville. Work on the Spicket River Greenway focused a multi-ethnic community on a hidden urban river. This culminated in a thesis topic for an Urban Rivers Fellow and a multi dimensional presentation with design models by high school students from the young architects program. Two Fellows will complete their field work this summer, one on nonpoint source pollution and another undertaking a wetland assessment.

Urban Rivers Fellows are not the only additions to the Urban Rivers entourage. Two Urban Rivers interns have spent the past few months working on some exciting projects. The history of Chelsea Creek is being researched and compiled by Elaine McGrath. The information will be used to create a historical trail to encourage the communities and visitors to explore the creek and its many fascinating stories and sites. A community advisory group has been exceedingly involved in the process, defining an exciting vision for the project. The next step in the process will be to find funding to produce a brochure and maps of the creek's sites and historic trail.

Urban Intern Deb Olstein has just completed a series of informational brochures about Mill Creek, Chelsea and its salt marshes including the basics of salt marsh ecology and the animals that depend on them. The brochures had their debut at the Earth Day Festival on Mill Creek. Deb was also involved in the planning and execution of the festival. The hard work resulted in over a hundred people attending the festival enjoying dozens of displays and activities. Next on the intern's agenda for Mill Creek is vegetation assessment to quantify the incursion of *Phragmites* onto the salt marsh.

Urban River Intern Deb Olstein helping kids at the Mill Creek Earth Day event. Photo by Linda Olstein.

With all the interesting activities happening on our urban rivers, a forum would allow people to gather together to share and learn. The Program is actively seeking funding to host a forum on Urban Rivers in the autumn. Look for more information in the next newsletter or check the Riverways web page for the latest information. The Urban Rivers Program also has its own newsletter; just let us know if you would like to be added to the Urban Rivers mailing list.

River Restore Program Update

It's not the dam, it's the sediment

Flowing rivers have long been used for transport – commerce and recreation on the water are cornerstones of many laws governing the quantity and quality of the nation's waters. Below the surface, rivers also perform a natural transport function – moving sediment of various grain sizes, classified from small to large as clay, silt, sand, gravel, cobble, and boulder, and distributing it into their channels to form habitat features such as bars, pools, and riffles.

Dams slow a river's flow and cause sediments in motion to settle out, filling the impounded waters behind the dam. Dams are designed to handle this situation, with outlets and gates to periodically drain and flush them out.

However, when a dam is no longer in active use, sediments accumulate and eventually fill the impoundment. The River Restore Triage Team has visited many dams where the dam spillway is filled to the brim with sediment. Watershed geology and land use determine what type of sediment accumulates; industrial history and land use determine what type of compound contaminates.

Sampling behind a dam to classify the "grain size" and quality of sediments is often the first step in a dam removal feasibility study. Managing this sediment during a dam breach or removal project by activities that range from letting the river redistribute the sediment downstream, stabilizing the sediments instream, or dredging the sediments for upland disposal (either beneficial reuse or landfill) are key to estimating the total cost of the project.

This year, River Restore will be working in partnership with the U.S. Geological Survey to develop a sediment screening protocol that will allow a greater number of sediment cores to be taken and analyzed for "families" of contaminants for a lesser cost. This "pre-characterization" of impounded sediment will better represent the variety of sediment types and contaminants than a limited number of "grab" samples could.

Sites on the French River and Yokum Brook, a tributary of the Westfield River, will be sampled this summer. Sediment cores will be archived for more detailed laboratory analysis should any contaminant "families" be detected.

This work is funded by a 104(b)(3) grant awarded to River Restore by the Massachusetts Department of Environmental Protection. To fulfill the obligations of this grant, River Restore will draft guidance on how to develop sediment sampling plans as well as how the results of the screening methodology can be used to determine the range of sediment management options available to a project. Furthermore, River Restore will convene a Sediment Advisory Committee to develop guidance for how appropriate sediment management options can be considered within the regulatory framework.

Adopt-A-Stream Program Update

In Defense of Streams

Small streams, the ones that are most likely to be culverted, covered, or otherwise compromised are an important link to the removal of nutrients, particularly nitrogen, in surface waters. A recent report in the journal *Science* shows that small streams, those with a shallow depth and high surface-to-volume ratio, can remove as much as 50% of excess nitrogen from fertilizers and other surface water runoff. Streams are able to remove nitrogen through the activity of nitrogen-absorbing organisms and by releasing nitrogen from the water surface into the air. Streams that are locked up in culverts or are channelized are much less effective at removing nitrogen. Natural stream channels also provide habitat for aquatic insects, fish, and aquatic plants, important parts of the food chain and broader ecosystem. They serve as corridors for migrating fauna, including mammals big and small, birds, and amphibians.

While much of our focus has been on restoring large river systems and their associated animal populations, small streams, silently doing their work, are often overlooked by the local community. Now that we have made significant gains in cleaning up large pollution sources to our major rivers, we can turn a closer eye to the tributaries that feed these systems, and the importance of protecting these resources down to even the smallest intermittent systems.

Many of our waterways are still not meeting water quality standards, especially for nutrients. Compared to shutting off industrial discharges and other pollution sources, removing the last bits of nutrient and bacterial pollution from our waterways will be expensive and challenging, especially as populations increase. Protecting these small streams will be even more challenging as land gets divided and connections disappear. We need to look at our yards, our neighborhoods, our towns, to understand and protect the water sources that are so important to all larger systems.

Stream Teams in Massachusetts have long been advocating for small streams as well as mainstem rivers. As Stream Teams work on solutions to non-point source pollution in their communities, they are bringing to light the connections that we all have with the health of small streams. It will take an effort from all citizens to maintain these smallest and most vulnerable systems.

Stream Teams Tackle Source Water Protection
Coles Brook

The Coles Brook Stream Team, a group of Seekonk residents, Seekonk High School students, and members of the Ten Mile River Watershed Alliance has completed a Shoreline Survey of Coles Brook to determine possible threats to the surface water system. In 1998, a Seekonk Water District wellfield, located next to the brook, was contaminated by surface water during a flood. The wells were contaminated with fecal coliform bacteria from the brook when water entered through tiny holes in the well casings. Since then, the wells have been shut down, and will soon be rehabilitated and hooked into a new treatment plant.

Coles Brook is a small suburban stream, starting in a large wetland and flowing through residential neighborhoods, the Caratunk Wildlife Refuge and the Ledgemont Country Club. Sources of contamination are not easily detected, but the brook does not meet water quality standards for bacteria during wet weather events. A 1999 water quality assessment did not pinpoint a source for this contamination, showing a few areas with high levels of bacteria, while others were low. Could this be a condition of being a suburban stream, with a variety of land uses and high biological activity? Much of the stream corridor is naturally vegetated (except along golf course fairways), and provides some instream and stream corridor habitat. Some stormwater outfalls were detected, and the entire neighborhood uses on-site septic systems.

A Source Water Protection Grant is helping the group to further study the possible contamination sources in this small suburban watershed. The Shoreline Survey will help the Stream Team determine priorities for protecting the brook in terms of local educational efforts and further study of water quality in the brook. Water quality testing will be conducted as a followup to the earlier testing which was somewhat inconclusive as to sources of contamination.

First Herring Brook

First Herring Brook, located in Scituate, is a drinking water source for the town, and residents are concerned about protecting and understanding this resource. In its early planning stages, the First Herring Brook Watershed Initiative decided to apply for a Source Water Protection Grant and write an application that included a Shoreline Survey and mapping project along with educational and other sampling components.

The team conducted two Shoreline Surveys after a fall training session. They followed up the Shoreline Survey with identifying vernal pools, using GPS units to locate tributaries and other important spots along the river, and studying macroinvertebrate species. They have been working to identify a state listed amphipod species in the brook, and are beginning to look at habitat and wetlands, using Adopt-A-Stream riparian area data sheets. The team has done an exhaustive look at almost all surface water in the watershed, identifying unmapped tributaries, and looking at the health of riparian areas. Tens of volunteers have spent hours of walking and studying this resource during this past winter, even in the craziest of weather.

The two Shoreline Surveys that have been completed will help to determine potential sources of contamination to the brook and will be followed up by educational activities and the creation of a web page. Future studies of macroinvertebrates and water quality may also be undertaken as part of this grant. The goals for the Shoreline Survey are to assess streams and waterbodies, locate streams and waterbodies that have not been mapped, list potential threats to streams, and establish monitoring sites for future data collection. The team was recognized for their efforts with an Adopt-A-Stream award when they presented their report to the Scituate Board of Selectmen in June.

Group looking at First Herring Brook, by Damon Pond. Photo by Kristine Van Lenten

Conserving Water Through Environmentally Sound Landscaping

Water Resources Commission Recommendations

(Excerpted from a *Streamlines* article by Jackie Murphy, Assistant Director of Water Policy, EOEA)

In Massachusetts many municipal water withdrawals will double, and in certain cases triple, by June. Water suppliers report that lawn irrigation is the greatest contributor to increased water consumption during summer months. This increase forces municipal water pumps and wells to work at peak capacity and threatens the ability of municipalities to store water for water pressure and fire protection purposes. Excessive withdrawals can also have harmful effects on surrounding water resources and the environment.

Many Stream Teams and Watershed Associations are using these and other recommendations and working with town officials and water departments to promote better water management.

Because lawn irrigation is a substantial source of water consumption, promoting efficient lawn irrigation is essential to protecting water supplies for current and future public use and protecting the biodiversity of associated resources. Last spring the Water Resources Commission convened a Lawn Water Conservation Task Force to develop recommendations to enhance the efficient use of lawn and landscape water. These recommendations were targeted to property owners, communities and state agencies.

Included in these recommendations were six key landscaping recommendations that provide a good summary of water efficient landscaping techniques. These are:

1) Minimize Lawn Size

Lawns are the biggest culprits in landscape water use. By reducing lawn size during site and landscape design, property owners will substantially reduce the amount of water used for landscape maintenance. Replacing lawn area with trees and shrubs can benefit property owners by creating privacy and shade around homes and offer potential savings spent on indoor cooling.

2) Choose Native and Drought Tolerant Plant Species

Native species have adapted to the environmental conditions of New England and will create wildlife habitat. Generally, an insect resistant mixture of grasses that includes a high percentage of fine fescues will ensure a drought tolerant lawn. Moreover, native species will need fewer landscaping inputs, such as water and chemicals, than other species. Some native species may be more drought resistant than others. Consult with a knowledgeable nursery person to determine what plant species are appropriate for the soil and specific characteristics of the location.

3)Water Only When Necessary

In Massachusetts summer months tend to be wet and the season is relatively short, landscape water needs are modest. Not only is overwatering wasteful, it can cause turf problems by encouraging fungal growth and disease resulting in the development of shallow, compacted root systems that are vulnerable to drought and foot traffic. Turf water needs vary according to many factors including: amount of solar radiation, temperature, humidity, grass species and rate of growth, rooting depth, and soil texture. In order to determine when to water, one should observe both soil and turf conditions.

4) Don't install automatic irrigation systems in water short communities

Some communities face chronic water shortage problems. In these communities, property owners and managers should not install irrigation systems as a way to reduce the water used for irrigation.

5) Install Rain Shutoff Devices on Automatic Irrigation Systems and set system to water infrequently (if automatic irrigations systems are allowed)

A rain shutoff device shuts off the automatic irrigation system when it rains, protecting the landscape from overwatering and saving property owners [money]. Rain shutoff devices are inexpensive, easy to install, and can be installed on any automatic irrigation system. System controllers should be set to water only when necessary, generally weekly is sufficient. They should also be set to meet the types of outdoor water restrictions that may be imposed by the community or water supplier.

6) Collect Rain Water for Landscaping Needs

Use cisterns or rain barrels to capture rainwater from downspouts to use for flowerbeds, shrubs, and newly planted trees. Proper use of these systems can greatly reduce water use from the municipal system. [FYI, information on cisterns and rain barrels can be found on the web at <http://dnr.metrokc.gov/market/rainwaterharvesting.pdf> and <www.therainbarrel.com>.]

7) Mow Lawns at the Highest Recommended Height

Most turf grass species are healthiest when kept between 2 + and 3 inches. Longer grass shades the soil improving moisture retention. Longer grass also has more leaf surface to take in sunlight, allowing it to grow thicker and develop a deeper root system, which in turn helps grass survive drought, tolerate insect damage, and fend off disease.

For more information on lawn and landscape water conservation contact Jackie Murphy Assistant Director of Water Policy at EOEA (617) 626-1179.

The spring issue of the Adopt-A-Stream Program Newsletter, the *Stream Advocate*, was devoted to lawn care and its implications on streams. The newsletter gave background and resources to watershed associations and Stream Teams to better address water use and lawn care issues in their communities. This issue is available on the web at <www.massriverways.org> or by calling our office.

Rivers Month, continued from page 1

The presentation helps to illustrate the link between Rivers Month and Biodiversity Days and the Global Ecosystem Assessment efforts launched by United Nations Secretary Kofi Annan on June 5, 2001. The exhibit continues during Biodiverisity Days and June Rivers Month.

The partnership between the Museum of Science, EOEA, DFWELE and Riverways in creating an event to celebrate Rivers Month was a successful first. All participants enthusiastically recommend sponsoring future events and projects together. Each year's Rivers Month Proclamation is an opportunity to hold an event, find new or support existing partners and rally support for our rivers. Last year, Secretary Durand presented the Rivers Month Proclamation to the Organization for the Assabet River at their photography exhibit at the State House. Riverways welcomes suggestions for June Rivers Month Celebrations and invitations to your watersheds.

Community Foundations in Massachusetts

At several workshops around the state, representatives of community foundations have recommended that environmental groups – including watershed associations and stream teams–contact them. A community foundation is a public charity that works with individuals, families and businesses to create permanent grantmaking funds that serve a particular geographic region. This may be as small as a town or as large as a state, as in the case of Maine, Vermont and Rhode Island. Community foundations are the fastest growing type of philanthropy in the US with 500 foundations nationwide and 17 in Massachusetts serving almost every town in the Commonwealth. Since community foundations are geographically based their grants tend to address a broad range of community goals rather than focusing on a particular issue. In this way, they are able to meet changing needs and provide support to what matters most to the people who live in the region.

All community foundations administer a variety of funds. Discretionary and Field of Interest funds are used by the community foundation to provide support to local organizations that make a difference. Donor-advised funds enable the individual or family to recommend grants from their fund, while designated funds are established to benefit a specific agency or agencies.

To learn more about community foundations, we called six community foundations from various regions around the Commonwealth. The foundations we spoke to said they welcome hearing from environmental groups so that they and their donors can become familiar with environmental issues. In addition, some foundations' grant review committees consist of members of other funding sources, so that applying for a community foundation grant may bring your group to the attention of other funding organizations.

By highlighting some of the Commonwealth's community foundations, we hope it will serve to encourage you to get in touch with one serving your area. This article closes with a list of the 17 community foundations active in Massachusetts.

Berkshire-Taconic Community Foundation

Berkshire-Taconic Community Foundation (BTCF) has numerous funds that address a variety of community activities. BTCF's *Berkshire Environmental Endowment* focuses on water quality and related land issues. A committee reviews grant proposals. Preference is given to groups that build capacity, demonstrate community participation, and/or serve as a catalyst for action. The foundation awards grants to nonprofits, public agencies, schools or civic community groups as long as the purpose of the activity is charitable and helps improve the area's quality of life. In 2001, $12,000 in grants were awarded to five Berkshire County environmental groups. Groups must provide 1:1 match either in in-kind services or in cash. In-kind services means professional services such as pro-bono services given to a group by a consultant. The foundation encourages groups to get on the foundation's mailing list and share information about their work with the foundation. The foundation also runs seminars and workshops for nonprofits. Workshop topics include: grant proposal writing, special events planning, internet research for fundraising, and training for CEOs.

Examples of Environmental Grants:

• Hoosic River Watershed Association – to create a strategic plan that will increase their capacity, strengthen board and staff relations, and improve printed material.

• Lakes and Ponds Association of Western MA - to continue development and expansion of a water quality monitoring program by providing training to regional water quality monitoring groups and expanding programs for shared use of the equipment.

• Housatonic Valley Association - to develop a quality assurance project plan which will set the procedures, locations and types of water monitoring in each sub-basin of the Housatonic River watershed in Berkshire County.

Community Foundation of Western Massachusetts

The Community Foundation of Western Massachusetts serves Hampden, Hampshire and Franklin Counties. Discretionary funds are distributed quarterly as are donor-advised and designated funds. Each grant proposal is assigned to a reviewer. Reviewers are supportive and look carefully at each project. If the foundation can't fund a project, it offers suggestions of other sources of funding. The foundation tends to fund grants that have a positive impact on the community. In general grants average $5,000.

Some examples of awards to watershed groups include:

• Deerfield River Watershed Association – to develop a community watershed website to strengthen the network of clean water advocates in the Deerfield River watershed who help protect and conserve natural resources.

• Connecticut River Watershed Council – to purchase, renovate, and upgrade an historic building in Greenfield for its new headquarters.

Crossroads Community Foundation (Rivers: SuAsCo and Charles Watersheds)

Crossroads Community Foundation has 36 funds for its grantmaking. About half a dozen of Crossroad Communities funds can be used for environmental causes. These grants are usually for $3000-5000. These funds come from companies, private foundations, individuals and nonprofits who want to provide funds for good works without starting their own private foundations. Program Officer Becca Donham says, "Get to know your community foundation. The more they know what's out there the more they can educate the donors about the need. We want to know more about the great organizations in our area."

Examples of projects that Crossroads has funded that relate to watershed associations, stream teams, Community Councils, and Land Trusts.

• Organization for the Assabet River: Acton for establishment of Stream Teams and Shoreline Surveys; Maynard for Shoreline Surveys

• Sudbury Valley Trustees for SuAsCo Community Council River Visions Conference

• Sudbury Conservation Commission for walking trail and canoe launch at Hop Brook

• Framingham Advocates for the Sudbury River for the nature trail in Saxonville along the river

1998 Capacity Building grants for watershed related activities include:

• Charles River Watershed Association for a canoe and kayak guide

• OAR for board development and strategic planning

• SuAsCo Community Council for funds to educate municipalities about the Community Council

Essex County Community Foundation

• Essex County Community Foundation's purpose is to promote community-based giving, build financial resources and distribute funds to nonprofit agencies. Founded in 1999, its three

fields of interest are environmental stewardship, community-based arts and populations at risk. In addition to working cooperatively with community foundations in the Gulf of Maine, the Foundation also has local programs. The purposes of Essex County Community Foundation's Environmental Stewardship Initiative are: to provide a forum for sharing ideas; build connections among organizations and individuals; promote a longer-term sustainable vision for the future of Essex County; and provide funding for related activities. The Initiative supports those working to sustain our natural environment and develop tools and resources that avert the negative impact of growth in Essex County's communities. To achieve these ends, the Initiative is sponsoring a series of Leadership Conferences, providing examples of achievable tools for communities, providing small grants to nonprofit organizations and building an endowment to sustain and expand these efforts.

Grants are provided to nonprofit organizations in Essex County that were approved in February 2001 include:

- Boxford Open Land Trust – New visions for Boxford
- Groundwork, Inc. Lawrence – Spicket River Greenway Project
- Ipswich River Watershed Association – Ipswich River Restoration partnership
- Merrimack River Watershed Council – Community Based Watershed Assessment & Action on Tributaries to the Merrimack River
- Parker River Clean Waters Association – Expansion of the Parker River Watch, flow monitoring

Community Foundation of Southeastern Massachusetts

With funding from the Massachusetts Environmental Trust (MET) the foundation brought together six environmental partners to form a unique environmental alliance. Lacking environmental expertise, foundation staff brought environmentalists together to come up with one proposal. The foundation also wanted to foster partnerships, not competition. The group of six grew to become the Southeastern Environmental Environmental Alliance (SEEAL) that works on everything from watershed to garden events. The foundation helps the twenty-six members of SEEAL gain funding for their initiative. With the foundation funding, SEEAL members decide which of the projects submitted by members actually receives funding each year.

MA Environmental Education Plan points to SEEAL as an exemplary model for Regional Environmental Educational Alliance and encourages other newly emerging REEAs to form relationships with Community Foundations. The foundation believes that this partnership puts all partners – including the foundation—on an equal footing. To help the partners attend the meetings, the foundation supports some administration costs. If other environmental groups in SE Massachusetts (and the foundation supports over 40 towns) are interested in funding from the foundation, they should become members of SEEAL. Since 1996, the Community Foundation has raised $117,000 for SEEAL.

In addition, the foundation has library hours in the afternoons on Mondays, Wednesdays and Fridays. There is an orientation Mondays at 1:00. People can have online access and can search for 53,000 national foundations on CD-rom. This brings to Southeastern Massachusetts information that formerly was available only in either Providence or Boston.

The foundation provides free grant writing seminars every other month – the next one is in July. In alternating months there are other workshops including communications, strategic planning, and technical development.

Greater Worcester Community Foundation

The Greater Worcester Community Foundation (GWCF) has been serving the cities and towns of Central Massachusetts since 1975 and currently has an endowment of $90 million. It has always included environmental grantmaking in its activities. That will soon increase when GWCF secures a $150,000 1:1 challenge grant from the Massachusetts Environmental Trust (MET), resulting in $300,000 permanent fund for the region focusing on water and related land use issues.

GWCF awards more than $1.4 million from its discretionary or field-of-interest funds each year, in a spring and a fall cycle. Typical grants are $5,000-$20,000. GWCF offers mini-grants throughout the year, in amounts up to $2,500 for small, time sensitive projects. The Foundation is particularly interested in activities that "foster partnerships, preserve and enhance the region's resources, provide access for disadvantaged people, and create a safe and healthy environment for all ages." Its guidelines are available by calling the office or visiting its web site at <www.greaterworcester.org>.

The Foundation encourages environmental organizations to share their knowledge of local issues with them. Program Officer Jackie Brousseau suggests that people call her to discuss ideas. "We see ourselves as partners to the nonprofits in our region," she stated. "We welcome the opportunity to visit your projects. We want to make sure that each proposal has the best chance of success." When a proposal is reviewed the first question asked is, "How does this benefit the community? How will it make the community stronger?" One way environmental groups can do this is to show how their project impacts local people. For example, people need clean water, and often stream teams are one way to engage people of various ages in the care of their local rivers and lakes. In addition, maps and pictures strengthen a proposal by bringing it to life.

From street tree planting to river clean-ups, GWCF has made many environmental grants over the past 26 years. Recent examples are:

- the Blackstone River Watershed Association for water quality monitoring and stream teams
- the Massachusetts Audubon Society for summertime education programs, for "On the River!" and for the Blackstone Headwaters Coalition;
- Wachusett Greenways to complete rail trail signage;
- The Midstate Trail Committee of Worcester Appalachian Mountain Club for an interpretative trail guide.

In addition to grant making, GWCF manages the endowments of many nonprofit organizations. The Greater Worcester Land Trust and Tatnuck Brook Watershed are two groups that take advantage of this service.

GWCF supports the management and governance challenges of area organizations through its Nonprofit Support Center. Its services include seminars and workshops, organizational assessments, short-term consultation and technical assistance grants.

According to the Community Foundation Locator web page <www.CommunityFoundationLocator.com>, there are 17 community foundations active in Massachusetts:

Berkshire Taconic Community Foundation
271 Main Street
Great Barrington, MA 01230
Phone: (800) 969-2823, Fax: (413) 528-8158
Jennifer Dowley, President
E-mail: btcf@bcn.net

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The Boston Foundation
One Boston Place, 24TH Floor
Boston, MA 02108
Phone: (617) 723-7415, Fax: (617) 589-3616
Anna Faith Jones, President & CEO
E-mail: bjg@tbf.org

Brookline Community Fund
40 Webster Place
Brookline, MA 02146
Betsy DeWitt
E-mail: bcf40@bellatlantic.net

The Cambridge Community Foundation
99 Bishop Allen Drive
Cambridge, MA 02139
Phone: (617) 576-9966, Fax: (617) 876-8187
Robert S. Hurlbut, Jr., Executive Director
E-mail: cambridge@igc.org

Community Foundation of Cape Cod
P.O. Box 406
Yarmouthport, MA 02675
Phone: (508) 790-3040, Fax: (508) 790-4069
Elizabeth Gawron, Executive Director
E-mail: comfndcc@capecod.net

Crossroads Community Foundation
20 Main Street, Suite 301
Natick, MA 01760
Phone: (508) 647-2260, Fax: (508) 647-2288
Mark Yerkes, Executive Director
E-mail: ccfdn@acunet.net

Essex County Community Foundation
49 Salem Road, Topsfield, MA 01983
Phone: (978) 887-8876, Fax: (978) 887-0354
David Tory, Chairman
E-mail: info@eccf.org

Greater Lowell Community Foundation
169 Merrimack Street, 5TH Floor
Lowell, MA 01852-1723
Phone: (978) 970-1600, Fax: (978) 970-2444
David Kronberg, Executive Director
E-mail: glcf@gis.net

Merrimack Valley Community Foundation
305 Essex Street, 4TH Floor
Lawrence, MA 01840
Phone: (978) 681-5993 Chris Corbett

Old Colony Charitable Foundation
P.O. Box 9477, Boston, MA 2105
Phone: (617) 434-5669, Fax: (617) 434-7567
Sharon Driscoll, Executive Account Manager

Permanent Endowment Fund for Martha's Vineyard
P.O. Box 1356
Vineyard Haven, MA 02568-9774
Phone: (508) 693-0154
Fax: (508) 693-7351
Polly Brown, Chair
E-mail: polbrown@vineyard.net

Quogue Community Foundation
c/o John Post, 585 Rutland St.
Carlisle, MA 01741-1211
Phone: (978) 369-8405
George Post, President

South Shore and Neponset Valley Community Foundation
430 Adams Street
Qunicy, MA 02169
Rick Iacobucci

Community Foundation of Southeastern Massachusetts
227 Union Street, Suite 609
New Bedford, MA 02740
Phone: (508) 996-8253
Fax: (508) 996-8254
Anne Beaulieu
E-mail: comfdsem@ma.ultranet.com

Community Foundation of Western Massachusetts
1500 Main Street
Springfield, MA 01115
Phone: (413) 732-2858
Fax: (413) 733-8565
Kent Faerber, President

The Woods Hole Foundation
P.O. Box 603
Woods Hole, MA 2543
Phone: (508) 540-0773
Peter Collom, President

Greater Worcester Community Foundation
44 Front Street, Suite 530
Worcester, MA 01608-1782
Phone: (508) 755-0980
Fax: (508) 755-3406
Ann T. Lisi, Executive Director
E-mail: gwcf@greaterworcester.org

MEDIATION & MITIGATION:

The Role of Conflict Resolution in Hazard Mitigation

Submitted by David O. Mendelsohn
Project Facilitator & Dispute Resolution Specialist
Massachusetts Executive Office of Environmental Affairs,
Department of Environmental Management

Mediation and facilitation have been used over the past nine years by the Executive Office of Environmental Affairs as dispute resolution tools to help resolve public multi-party environmental conflicts. Mediation is a structured process in which the mediator assists the disputants of a conflict in reaching a negotiated settlement of their differences. Facilitation is a less formal, collaborative process, in which the facilitator functions as a neutral process expert, to help bring the parties to a consensus on a number of complex issues. Both processes are generally voluntary and confidential.

The following cases illustrate the complexity of the conflicts that these tools have successfully addressed. While these examples were centered around flooding and flood hazard mitigation, other issues must be part of the discussion, such as hydrology and hydraulics, biological resources and recreational uses within a wa-

tershed. The work of the mediator or facilitator is to bring these diverse interests to the table as well as help the parties hear and understand each other.

Many times, members of the regulatory community (enforcement agencies) are part of this discussion. The primary interest of a regulatory agency is often to stop the offending behavior, followed closely by redressing grievances. Tertiary to those interests is punishment, which very often can be met as part of redressing grievances. Agencies' regulatory authority can not always achieve desired outcomes to disputes, and mediation can bring better results. Broad interests are best addressed through mediation, which allows for facilitated consensus building, resulting in a better project for all parties.

A mediation or facilitation table must be a safe place and a safe process, not a stage for blame setting, but a future-planning forum. To re-emphasize a most important point, these processes work best when the negotiations are both voluntary and confidential.

Aberjona-Mystic River Watershed

After the severe flooding of October 1996, the Town of Winchester and adjacent communities of Arlington, Woburn, and Medford attempted to determine what course of action they should take to prevent a reoccurrence of the disaster. After negotiations between them reached impasse, they requested assistance from the Commonwealth. The DEM/MEMA State Hazard Mitigation Team responded by convening and facilitating a series of meetings, and helping the communities establish the Aberjona-Mystic River Hazard Mitigation Working Group. The working group was established to collect information, set priorities and plan flood mitigation activities.

The Aberjona-Mystic River Hazard Mitigation Working Group began meeting in July 1998 with representatives from Arlington, Medford, Winchester and Woburn. The meetings were facilitated by EOEA/DEM with assistance from MEMA, and in coordination with the watershed team leader. The Working Group has grown to include the communities of Reading and Stoneham as well as representatives from the Massachusetts Watershed Initiative, the Mystic River Watershed Association and Tufts University. Kraft Atlantic Gelatin has become an active participant in the group due to frequent flooding at its site in Woburn and because many of its employees live in areas at risk to flooding.

The expanded working group has supported several flood mitigation actions, such as the development and implementation of an Emergency Action Plan to coordinate the release of water from Horn Pond Dam (Woburn), Central Falls (Winchester) and the Upper Mystic Lake Dam (MDC) in anticipation of large rain events. Additional work included the repair of gate valves at the Upper Mystic Lake Dam and the completion of limited hydrologic and hydraulic studies in three communities.

In October 1999, the Upper Mystic River Watershed, which is comprised of the nine communities of Arlington, Burlington, Lexington, Medford, Reading, Stoneham, Wilmington, Winchester and Woburn, was designated a Project Impact Community by the Federal Emergency Management Agency (FEMA). Of the over 150 designations nationwide, this is one of the first where a watershed area was selected as a Project Impact community. The acceptance of this nomination represents a major change in FEMA's flood mitigation approach. Their recognition of a watershed basin view when addressing flooding issues, and a redefinition of community to include geographic boundaries such as a watershed, is a major shift away from a simple political jurisdiction definition.

To formalize their working relationship, five of the nine communities within the Upper Mystic River Watershed have chosen to initiate the process to form an Environmental Joint Powers Board through the use of Mass. Gen. L. c. 21A, §20 which enables the formation of Environmental Joint Powers Agreements (EJPA). These communities are the first in the Commonwealth to utilize the provisions of this recently enacted legislation. The stated purpose of the Upper Mystic River Watershed Board will be to work jointly and cooperatively to reduce or eliminate flooding and other hazards in the Upper Mystic River Watershed. While the Board's formal decisions are made by a vote by the designated member from each participating municipality; the Working Group will continue to meet in an advisory capacity.

The communities working with the facilitation team were quickly able to improve communication, overcome animosity and obstacles, and institute-coordinated actions that protected their respective communities. The Emergency Action Plan was activated in six severe storm events between January 1999 and July 2000.

Muddy River Project Facilitation

In January of 1996, EOEA assigned an experienced mediator to be a Project Facilitator for the Muddy River Project. At that time (before the flooding of Oct. 96) the main issues were historic preservation, water quality, and park maintenance. There were a host of very active citizen interest groups some with a twenty-year history of Muddy River advocacy. There were 20 public agencies that had either operational or regulatory responsibility effecting the Muddy River. These include federal, state, City of Boston, and Town of Brookline officials. The interested parties also included more than a dozen institutional neighbors, several state legislators, and one former Governor. Below are several milestones achieved through collaborative problem solving and facilitated communication.

• In the beginning, several problems needed to be addressed. Many of the individuals had never spoken to each other; there was significant distrust among many of the parties; and there was disagreement on priorities as well as on what should be done. The first step was to convene a meeting of the public agencies and establish lines of communications.

Many subsequent meetings and several months later the first of several agreements was signed. This *Memorandum of Agreement* (signed in December of 1996), called for Boston Parks & Recreation, Brookline DPW, and the Metropolitan District Commission (MDC) to coordinate their maintenance resources and actions in the Emerald Necklace. In addition to coordinating some routine maintenance, the parties also established an annual "stem to stern" spring cleanup.

• After the Presidential declared disaster of October 1996, flooding became a driving interest for several of the parties, and the public agencies began meeting formally as the Project Partnering Engineering Group. This group expanded to include the Mass. Emergency Management Agency (MEMA), the Federal Emergency Management Agency (FEMA), the Mass. Bay Transportation Authority (MBTA), as well as four engineering firms on contract with different public agencies. It is note worthy that the engineering firms and their clients all agreed to share information in a compatible format, so as to reduce redundancy and shorten the time it took for results.

It was in this context that an agreement was crafted as an "*Addendum to Local Emergency Action Plans Regarding The Potential Flooding of the Muddy River: An Interim Interagency Plan.*"

Continues, next page

This plan (drafted in the fall of 1997) coordinated flood mitigation activities of the MDC, the MBTA, Boston Parks & Recreation, Boston Water & Sewer Commission (BWSC) and Brookline Water & Sewer, with National Weather Service warnings, and has been successfully implemented several times in the last three years. It is also designed to be a dynamic document that can easily be updated as conditions change and hydraulic and hydrologic knowledge increases.

• Working informally and formally with the public agencies and with information gathered from citizens at public meetings, the primary owners of the river and parkland began to craft a "Muddy River Work Plan." The "plan" went through several drafts before October 1996, as well as in the months after, incorporating flood mitigation solutions. This "plan" later became integrated into a draft "Muddy River Restoration & Action Plan" published by the institutional partners represented by The Fenway Alliance. In addition, a collaborative effort to survey the sediments of the Muddy River involved a private/public partnership of Boston, Brookline, the Department of Environmental Management (DEM), the U.S. Geological Survey (USGS), the U.S. Environmental Protection Agency (EPA), and the Fenway Alliance. In October of 1997 the USGS published a "Channel Morphology and Streambed-Sediment Quality in the Muddy River…."

• By August of 1998, a "Comprehensive Action Plan" was taking shape, that included flood mitigation, water quality improvements, and landscape restoration, and that recognized the cross-beneficial relationship of specific proposed actions. During the two and a half years, the relationship of the parties, (especially the public agencies) changed, in part due to better interagency communication and greater understanding of each other's interest, and in part because of changes of agency staff and commitment.

Two years from the date of the first signed agreement and after much effort and hard work by many individuals organizations and groups, a "comprehensive consensus plan" emerged with the filing in January 1999 of an Environmental Notification Form (ENF). The "Muddy River Flood Control and Habitat Enhancement" which is Phase I of The Emerald Necklace Environmental Improvements Master Plan, was filed by the Boston Parks & Recreation Department in collaboration with the Town of Brookline and various state agencies.

Tools for dispute resolution are now being integrated into the work of all state agencies through Executive Order 416, signed by Governor Cellucci in 1999. This executive order requires all state agencies and departments to have a dispute resolution coordinator. This is being done to bring tools such as mediation and facilitation to state government. For more information, contact your Department's dispute resolution coordinator or the Massachusetts Office of Dispute Resolution at 617-727-2224. For more information about these cases, contact David Mendelsohn at 617-626-1316.

Riverways/Greenways and Trails Small Grants Awards Update

You may have heard by now that the Mass. Riverways Program was unable to award any of its Riverways Small Grants this year due to factors beyond our control. We are optimistic that we will be able to revive our grants program in FY02 (check our Fall 2001 newsletter for details). In the meantime, the MA DEM Greenways and Trails Demonstration Grant Program was able to award a total of $79,100 in small grants this past spring. Many of the grants went to projects that involve rivers, streams and/or watersheds.

Grant recipients include: the Town of Chesterfield ($7,000 for the Upper Westfield Watershed Trails Inventory)(Westfield Wild & Scenic River); the Franklin Land Trust ($5,000 for the Mill River Greenway Project); the Hardwick Area Conservation Trust ($4,000 for the Central Ware River Rail Trail); the Harwich Conservation Trust ($4,000 for a Herring River Trail Guide); the Jones River Watershed Association ($5,000 for the Pine Brook Preserve); the Lowell Parks & Conservation Trust ($3,500 for the Concord River Greenway); the Mystic River Watershed Assoc. ($4,000 for their Blueways & Greenways project); the Orenda Wildlife Land Trust ($5,000 toward protecting a parcel on the Quashnet River); Org. for the Assabet River ($6,000 for the Upper Assabet Riverway Plan); and Westfield State College ($1,500 for a Westfield River Interactive Atlas).

Thanks to DEM for helping to fund these and other great projects. More information is available on-line at <http://www.state.ma.us/dem/programs/greenway/grants.htm> or by contacting Jennifer Howard at (413) 586-8706 ext. 18 or <Jennifer.howard@state.ma.us>.

On a related topic: The Mass. State Senate Post Audit and Oversight Committee recently released a report entitled ***Getting on Track: Common Sense Ideas to Expedite Rail Trail Development in Massachusetts***. The report states in part that "according to national experts, Massachusetts has a poor track record of completing rail trails and similar projects. An independent national report released in May 2001 ranked Massachusetts last [in] completing projects like rail trails...Massachusetts has an historic opportunity to build a network of rail trails that will serve as recreational gems for generations. However, the Commonwealth may squander that opportunity through a lack of vision and commitment." Text of the full report can be read on-line at <http://www.state.ma.us/legis/bills/st01858.htm>.

Frequently Asked Questions … continued from pg. 4

Last but not least, some attention should be paid to analyzing the overall cause(s) of the excessive erosion (i.e., why the erosive forces are out of equilibrium with the resisting forces). Unless these underlying causes are addressed, your river's excessive erosion problem is likely to continue. Opportunities to prevent additional streambank erosion include installing stormwater BMPs ("best management practices") in the watershed to retain and absorb stormwater running off impervious surfaces and retaining and/or restablishing a strip of deep-rooted vegetation along and above the streambank.

If you are interested in learning more, there are two good guidebooks available that explain the mechanics of streambank erosion and compare and contrast bioengineering with other streambank protection techniques. ***Western Massachusetts Streambank Protection Guide: A Handbook for Controlling Erosion in Western Massachusetts Streams*** (January 1998 - 77pp. + appendices) is the more technical document, and ***Management of Streams in Western Massachusetts: A Primer for Western Massachusetts Stream Bank Owners*** (August 1999 - 39pp. + appendices) is for a more general audience. Despite their titles the information in these books is applicable to similar rivers and streams in central and eastern Massachusetts. Both books are available from the Franklin Conservation District by calling (413) 585-1000 ext.5 (a small fee is charged to cover shipping and handling).

Resources & Grants

A new Web site is available that provides a "one-stop shop" for the entire federal grant application process. The **Federal Commons** Web site, recently launched by the Inter-Agency Electronic Grants Committee, allows users to search the General Services Administration catalog of federal grant programs. Eventually, the site will allow applicants to submit and track their grant applications on-line. In addition, a searchable database of new grant announcements is scheduled to be unveiled for live testing this summer. More information is available at <www.cfda.gov/federalcommons/> or <www.lgean.org/html/whatsnew.cfm?id=160>.

The Mass. Department of Environmental Management (DEM)'s Recreational Trails Grants program has released its brochure and application form for the 2001-02 funding cycle. Applications are due **Friday, July 27th**. The program has much more money than usual this year, on the order of $500,000. Grant range is $2,000-$50,000. The 2001-02 brochure and application are currently posted at <www.fieldspond.org/DEMRecTrails 2001-2.pdf>; similar information is available at <www.state.ma.us/dem/programs/trails/grants.htm>.

Here is a list (taken from the 2001-02 brochure) of the types of projects eligible for funding:

• Maintenance of existing trails, including bridges, drainage work, trail hardening, trail reconstruction, grooming snowmobile and cross-country ski trails;

• Development of trail-side and trail-head facilities such as signage, kiosks, maps, gates and interpretive displays;

• Construction of new trails or acquisition of land or easements for trails;

• Development of trails to link open spaces, recreation areas, homes, and communities;

• Development of trails within urban areas;

• Water trails;

• Protection or enhancement of Massachusetts' existing long-distance trails, e.g. Midstate Trail, Metacomet-Monadnock Trail, Appalachian Trail, Warner Trail, Bay Circuit Trail, Mahican-Mohawk Trail;

• Planning, design, and engineering necessary to get trails built;

• Innovative projects, which demonstrate creative approaches to trail construction, partnerships, resource protection, etc;

• Provision or promotion of appropriate public access to non-traditional recreational open spaces such as utility and transportation corridors, watershed lands, former industrial sites and landfills; and

• Provision of features which facilitate the access and use of trails by persons with disabilities." For more information contact Pete Brandenburg at <Peter.Brandenburg @state.ma.us> or (617) 626-1453.

The criteria and application for the **2001 Watershed Assistance Grants** (WAG) are now available and posted on the Web at <www.rivernetwork.org/howwecanhelp/howwag_2001cri.cfm; the submittal deadline is (postmarked by) **Friday, July 20**. The primary purpose of the WAG program is to support the growth and sustainability (i.e., organizational capacity) of local watershed partnerships in the United States. Grants of up to $30,000 are available to partnerships meeting stated criteria.

This is a highly competitive, national grant program funded by EPA through a cooperative agreement with River Network. Contact River Network at (503) 241-3506 ext.47 (voice mail) or <wag@rivernetwork.org> if you have any questions or need additional information.

The **Associated Grant Makers** (AGM, formerly the Associated Grantmakers of Massachusetts) is a regional association of corporate and foundation grantmakers. AGM's mission is to support and encourage philanthropic giving. AGM members range from small family and community foundations to some of the largest corporate and other grantmakers in the region; most of these groups focus their charitable giving in Massachusetts and New England.

One of AGM's chief objectives is to strengthen nonprofit organizations' fundraising capacity. To that end, AGM maintains an extensive resource library of grant opportunities open to AGM Members, Partners and the general public in its Boston office [55 Court St., Suite 520; (617) 426-2606]. Many of AGM's resources are also available on-line at <www.agmconnect.org>. A related organization, the **Western Massachusetts Funding Resource Center** [(413) 452-0615, <www.diospringfield.org/wmfrc .html>, performs a similar function for western New England.

On-Line Resources

American Lands Alliance
<www.americanlands.org>

The American Lands Alliance is dedicated to the protection and recovery of North American native forest, grassland and aquatic ecosystems; the preservation of biological diversity; the restoration of watershed integrity and the promotion of environmental justice in connection with these goals. This mission is accomplished by strengthening grassroots conservation networks throughout North America; by providing advocacy services and other assistance to local, statewide and provincial conservation organizations; and by helping to improve communications and coordination among these groups and other societal institutions. Call (202) 547-9400 for more information.

Center for a New American Dream
<www.newdream.org>

For many people today, the American Dream is turning into an obsession with stuff. The "more is better" definition of the American Dream focuses on big cars, big houses, more work, more stress, less free time…an unending chase for more. The hidden costs - to our quality of life and the environment - are profound. The Center for a New American Dream [(301) 891-ENUF (3683); <newdream@newdream .org>] helps individuals and institutions reduce and shift consumption to enhance quality of life and protect the environment. Its ultimate aim is to organize enough individuals, organizations, government agencies, and companies to secure significant positive changes in the way goods are produced and consumed. The Center's programs are designed to build a powerful network of individuals and institutions capable of moving with us from education to action on consumption issues.

Environmental Support Center (ESC)
<www.envsc.org>

Grassroots environmental organizations are all too often outnumbered, outspent and outmaneuvered by their opposition, whose top priorities are not usually in the best interest of the environment. The ESC empowers these environmental groups by helping to improve their management, planning, funding and communications capabilities. Since 1990, the ESC has repeatedly helped more than 1,500 local, state and regional organizations working on environmental issues. ESC's goal is to improve the environment of the United States by enhancing the health and well-being of these organizations. Among the services ESC offers are a Training and Organizational Assistance Program, a Leadership and Enhanced Assistance Program, a Technology Resources Program, a Workplace Solicitation Program, an Environmental Loan Fund, a State Environmental Leadership Program and its quarterly *Resources* newsletter. Contact the ESC at (202) 331-9700 for more information.

ForMyWorld
<www.formyworld.org>

Nearly eight in ten Americans say improving the quality of the environment should be a high priority, according to a recent Gallup poll. But many lack information on how to make a difference for the environment personally. And younger people, those who use the Internet most, are least likely to say they consider themselves environmentalists. To address this, the **National Wildlife Federation** has teamed up with **Environmental Defense** and other nonprofits to launch ForMyWorld, a first-of-its-kind Web site providing customized, local environmental information. Simply entering a zip code at <www.formyworld.com>, visitors can obtain practical advice on a wide array of environmental topics ranging from neighborhood pollution, recycling and wildlife to gardening tips on what plants thrive in their region. ForMyWorld's mssion is to change individual behavior, as it is their belief that "an informed and engaged public is the most powerful force we have for the environment".

Guidestar
<www.guidestar.org>

Produced by Philanthropic Research, Inc., Guidestar's mission is to promote philanthropy by helping donors, institutional funders and charities become more informed, effective and efficient. This Guidestar website enables donors to learn about the operations and finances of nonprofit organizations. For example, Guidestar posts the IRS Form 990 reports that charities are required to fill out on an annual basis. §501(c)(3) organizations can register with Guidestar to make themselves better known to potential donors (particularly the burgeoning number of people using the Internet to find out about and give money to charitable organizations). One local organization taking advantage of this feature is the **Charles River Watershed Association** (<www.crwa.org>).

National Environmental Education and Training Foundation (NEETF)
<www.NEETF.org>

NEETF is a leader in developing programs that help Americans understand the importance of environmental learning in the nationÆs ecological, social and economic future. Recent discussions over drinking water standards and arsenic levels have brought consumer questions about the safety of their tap water to the forefront. NEETF recently announced a new consumer and health professionals' Web site, <www.Waterqualityreports.org>, that tells people how to obtain detailed consumer tap water information for their community. It also explains in plain terms how the presence of different levels of chemicals, minerals, metals and biological pollutants may or may not affect citizens and their families. This Web site supports a 1996 national drinking water law (the Federal Safe Drinking Water Act) that requires the nation's 55,000 water companies and departments to report to customers at least once each year on the contents of local tap water and whether there is any reason to be concerned according to established health standards. The reports are called "Consumer Confidence Reports" (CCRs) and are posted on water company/dept. Web sites as well as typically mailed out along with water bills. For more information, contact the NEETF's Kevin Coyle or Debbie Sliter at (202) 261-6477.

New England Water Environment Association (NEWEA)
<www.newea.org>

Founded in 1929, NEWEA is a nonprofit education and technical organization comprised of over 2,500 water quality professionals with the common goal of protecting and enhancing our water environment. NEWEA has guided technological developments in water quality and provided its members and the public with the latest information on wastewater treatment and water quality protection. NEWEA's website provides .pdf versions of its informative newsletter as well as *Meet the Press: A Guide for Communicating with the Media*. [A similar group, the **Mass. Water Pollution Control Association,** can be found at <www.mwpca.org>.]

River Network
<www.rivernetwork.org/library/libnetdir.cfm>

This section of River Network's website provides access to a new on-line version of the *2001 River and Watershed Conservation Directory*, listing over 3,500 grassroots river and watershed conservation groups in the US as well as federal agencies and national nonprofit organizations dedicated to restoring and protecting our waterways. This on-line data is searchable by state and zip code as well as by name of organization and is constantly updated. Call (800) 423-6747 for additional information.

River of Words
<www.riverofwords.org>

River of Words [(510) 433-7020] is an environmental and art poetry program created to promote watershed awareness, literacy and the arts. Through its annual art and poetry contest and educators' tools, River of Words helps communities begin exploring the natural and cultural history of their own homegrounds. Through its website and many workshops and presentations around the country, River of Words provides students, teachers and their communities with tools, inspiration and incentive to begin exploring the natural and cultural history of their particular watershed, along with the art, music, folktales and literature it has inspired.

TechRocks
<www.techrocks.org>

TechRocks (formerly the Technology Project), a supporting organization to the Rockefeller Family Fund, is dedicated to accelerating social and political progress by building technological capacity for community collaboration and citizen engagement. TechRocks [(215) 561-3608, <info@techrocks.org>] encourages and enables foundations, advocacy groups and leading activists to use technology to achieve their goals, to increase participation from interested constituencies and achieve change more quickly than by traditional organizing and advocacy methods alone. Among the services TechRocks offers are "emediacy", an avenue for nonprofits to find and engage citizens who are willing to be internet activists but are not affiliated with a nonprofit; "ebase", a sophisticated and cost-effective system for nonprofits to manage information about their supporters; and "eriders", TechRocks' field staff, who provide nonprofits the education, training and on-site assistance to effectively use these and other technology tools.

Books, Journals, Films and Videos

Water Trails of Western Massachusetts: AMC Paddling Guide to the Best Lakes, Ponds and Rivers, by Charles W. G. Smith, is a great resource book for paddlers looking for more than just a peaceful afternoon on the water. *Water Trails* leads you on 32 nature tours of the best paddling spots in Western Massachusetts. Each detailed trip description highlights the wildlife, plants and landforms of the region. Many tours include a "boot print" describing a scenic hill or nature walk near the featured waterway for those eager to explore on foot as well as by boat. Copies of *Water Trails* (288pp., $14.95) can be ordered from AMC Books by calling (800) 262-4455 or on-line at <www.outdoors.org>. While you're at it, you may also want to get a copy of the recently revised ***AMC River Guide: Massachusetts/Connecticut/Rhode Island*** (third edition, 256pp., $14.95).

As helpful as the new low-flow toilets have been in reducing the need for water for household waste disposal (and the resultant burden on septic systems and sewage treatment plants), locations with constraints in obtaining and/or disposing of water may want to consider a "no-flow" option. The days of the outhouse may be largely in the past, but a modern indoor version may just be the wave of the future, especially in these times of increasing water scarcity. ***The Composting Toilet System Book***, by Massachusetts-based water efficiency expert David Del Porto and Carol Steinfeld, explains in detail how to select and maintain composting, greywater and other no/low water consuming toilets for household and other use. *The Composting Toilet System Book* may be ordered directly from the publisher, the **Center for Ecological Pollution Prevention** [CEPP, (978) 369-9440, <www.cepp.cc>] by sending a check for $29.95 plus $3.20 postage to CEPP, P.O. Box 1330, Concord, MA 01742 or purchased on-line at <www.realgoods.com/>. [FYI, information provided by MA DEP on the use of composting toilets in Massachusetts can be found on-line at <www.state.ma.us/dep/brp/wwm/files/comptoi.doc>. DEP's interim guidelines on the reuse of reclaimed water are posted at <www.state.ma.us/dep/brp/wwm/files/reuse.pdf>].

Rivers: Studies in the Science, Environmental Policy and Law of Instream Flow is a refereed quarterly publication that offers an interdisciplinary forum for research and professional literature addressing instream flow issues. In additional to research and management articles, *Rivers* includes sections on legal developments, government and books relating to instream flow. Abstracts of articles appearing in *Rivers* are posted at <www.instreamflow.com>; reprints of the full articles are available for $12 each. Yearly subscriptions to *Rivers* are available at $56 for individuals and $115 for institutions. Additional information is available by calling (970) 221-1707 or via e-mail at <info@instreamflow.com>.

Save Our Land, Save Our Towns, a new 57-minute film produced by small town newsman and Pulitzer Prize winner Tom Hylton, provides hope to folks concerned with the community character-degrading impacts of suburban sprawl. Hylton shows how with growth boundaries, green belts, reinvestment in urban areas and regional zoning, America's towns can be rebuilt and its countryside preserved from strip malls and subdivisions. *Save Our Land* is available from Bullfrog Films by calling (800) 543-3764 or on-line at <www.bullfrogfilms.com>.

Managing River Flows for Biodiversity: Balancing Human Demands and Ecosystem Needs teaches water managers and conservation practitioners about the ecological health needs of rivers, efforts to accommodate both of these needs, and tools for achieving this balance. This 25-minute video features case studies of the Apalachicola River in Florida and the San Pedro River in Arizona, and interviews with lawyers, water managers, and scientific scholars. Length: approximately 25 minutes. The video was prepared by The Nature Conservancy's Freshwater Initiative. You can obtain a free copy through the National Service Center for Environmental Publications by calling (800) 490-9198 or faxing your order to 513-489-8695. Please provide the title (Managing River Flows for Biodiversity) as well as the EPA document number (EPA 841-V-00-001).

Calendar

The **Northeast Watershed Round Table III Conference** will be held on Fri.-Sat. July 20-21 at the Northfield-Mount Hermon School in Northfield, MA. Sponsored by EPA New England, Northeast Utilities, Federal Partners for Natural Resources, National Park Service and River Network. Participants will develop watershed strategies that will combat sprawl by learning about effective new tools, examining case studies, and working in small discussion groups. The "tools" sessions will provide participants with an overview of a variety of resources available for promoting smart growth and watershed protection. The case study discussion groups, which will illuminate the complex issues involved in smart growth, will be lead by individuals with first hand experience dealing with watersheds and smart growth issues. The breakout groups, organized by state or watershed, will focus on developing a strategy to integrate watersheds into Smart Growth initiatives in that state or watershed. On Saturday afternoon, a series of in-depth workshops will be available for those who wish to learn more about a specific tool or resource. Contact Peter Raabe at 202-364-2550 or <praabe@rivernetwork.org> for more information.

North American Water Trails (NAWT), along with the **Maine Island Trail Association** (MITA), will be holding its fourth biennial conference, *Water Trails for the New Millennium*, from Fri.-Sun., Sept. 7-9 at the Southern Maine Technical College campus in South Portland, ME. The "meat" of the conference takes place on Saturday and consists of three concurrent tracks (water trail users, water trail management and water trails as opportunities) covering a total of over seventy different topics. Contact NAWT at (202) 232-8354 or <staff@watertrails.org> to preregister ($100 before 7/3; $125 afterward) or for additional information, or go to <www.watertrails.org/conference.html>.

Our Mission

The Mission of the Riverways Programs is to promote the restoration and protection of the ecological integrity of the Commonwealth's rivers and adjacent lands. Recognizing the uniquely important role of rivers in the state's ecology, the Department initiated the Riverways Programs in 1987.

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INSIDE!!!
Riverways Summer 2001 Newsletter

ANNOUNCEMENT

Watershed Iniative RFRs ("Request For Response") for Team Work Plan Projects will be posted on COMM-PASS (<www.comm-pass.com>) this summer. Please check often under "Professional Services" for a chance to bid on projects. See article on this subject on page 2.